






Energy Efficient Technologies Industrial Sector

Jamaica's Experience

Promoting Energy Efficiency in the Caribbean

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Port-of-Spain, Trinidad & Tobago

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Outline

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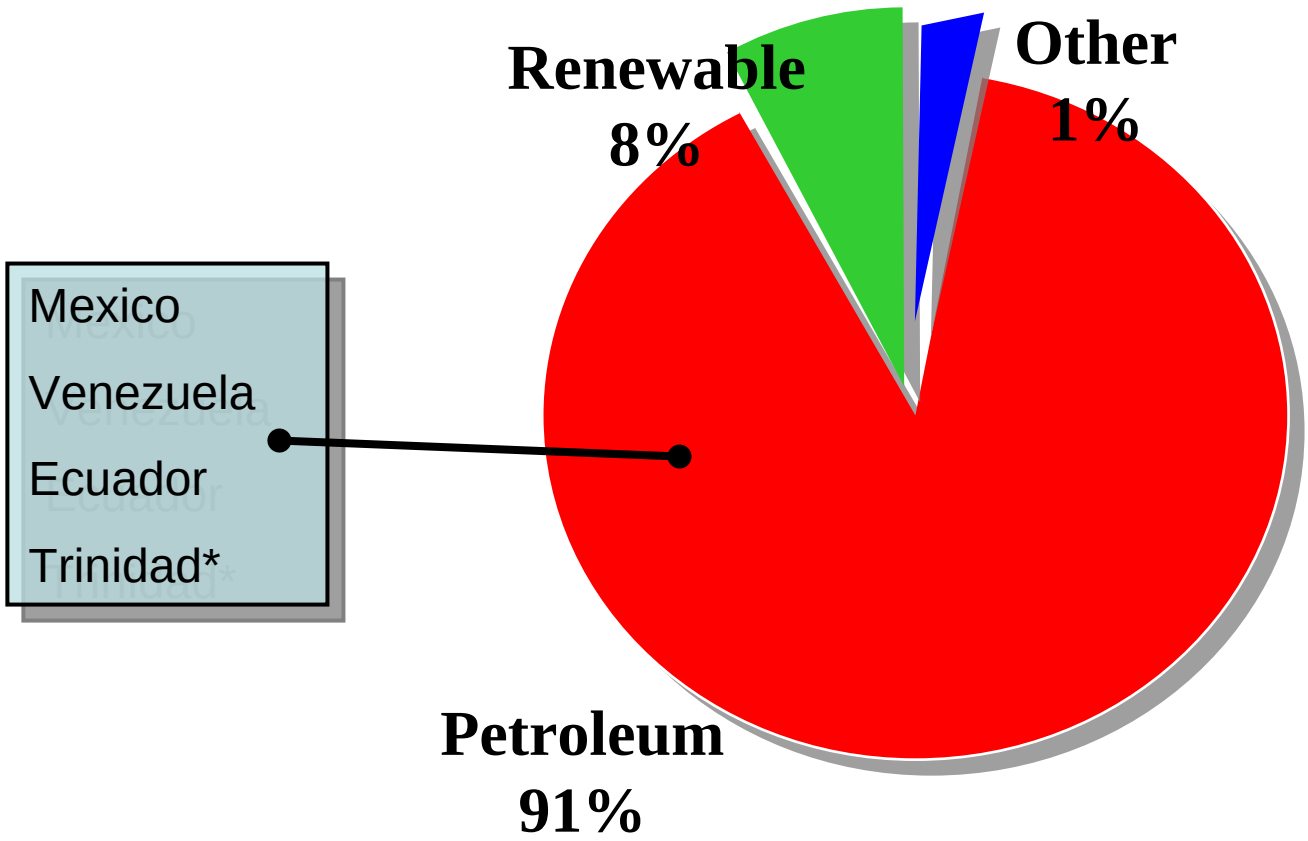
Introduction

- High dependence on imported oil
  - Petroleum import (2009)
    - 22.1 Mbbls
    - Cost - US$1.35bn
  - 24% of GDP (2009)

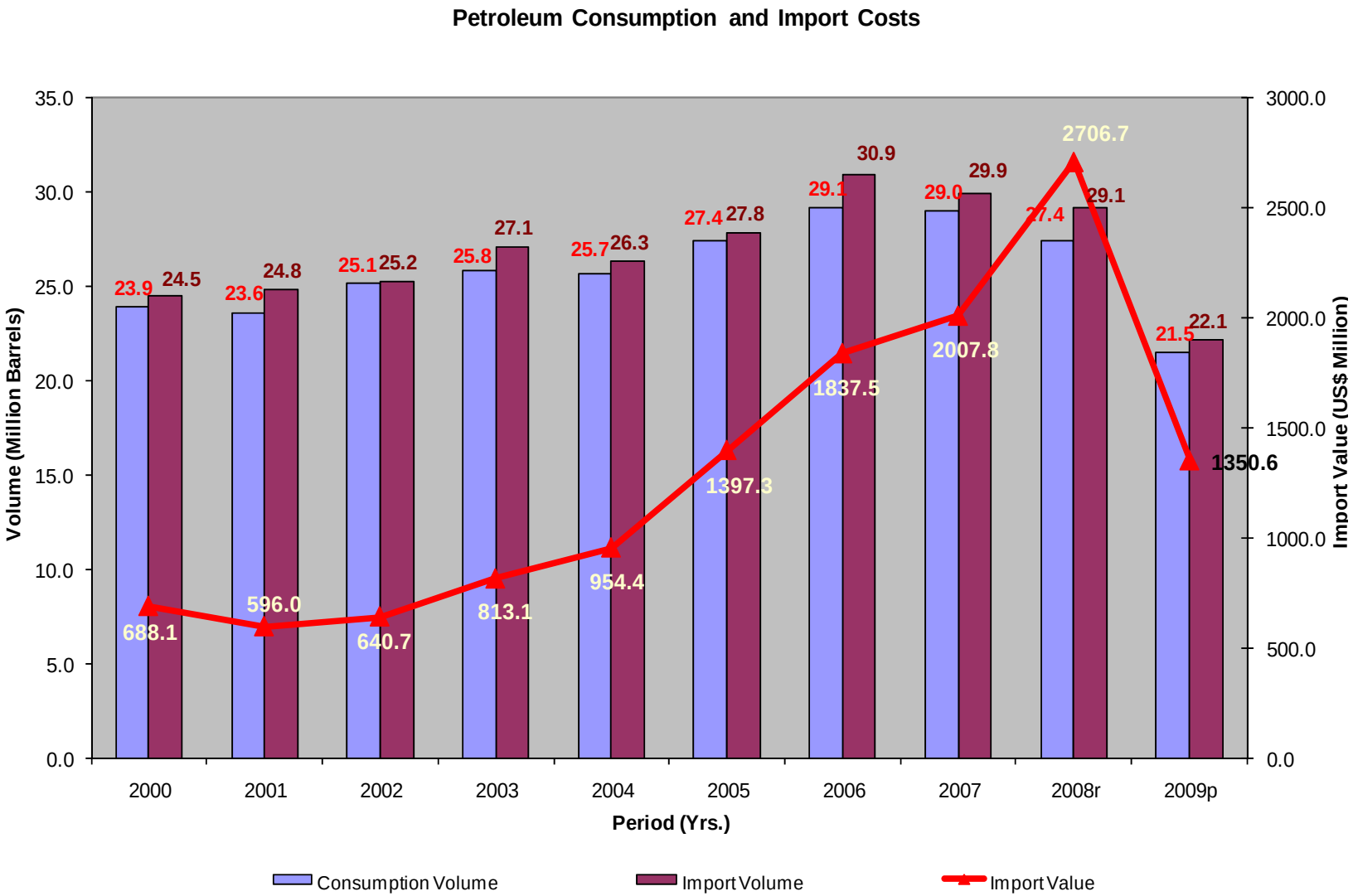
- High Concentration
  - Transport: 38%
  - Bauxite/alumina: 35%
  - Electricity generation: 23%
  - Total for three: 96%
  - Per capita consumption: 7.6 boe
    - Excluding the bauxite sector: 5.0 boe

Energy Sector Overview

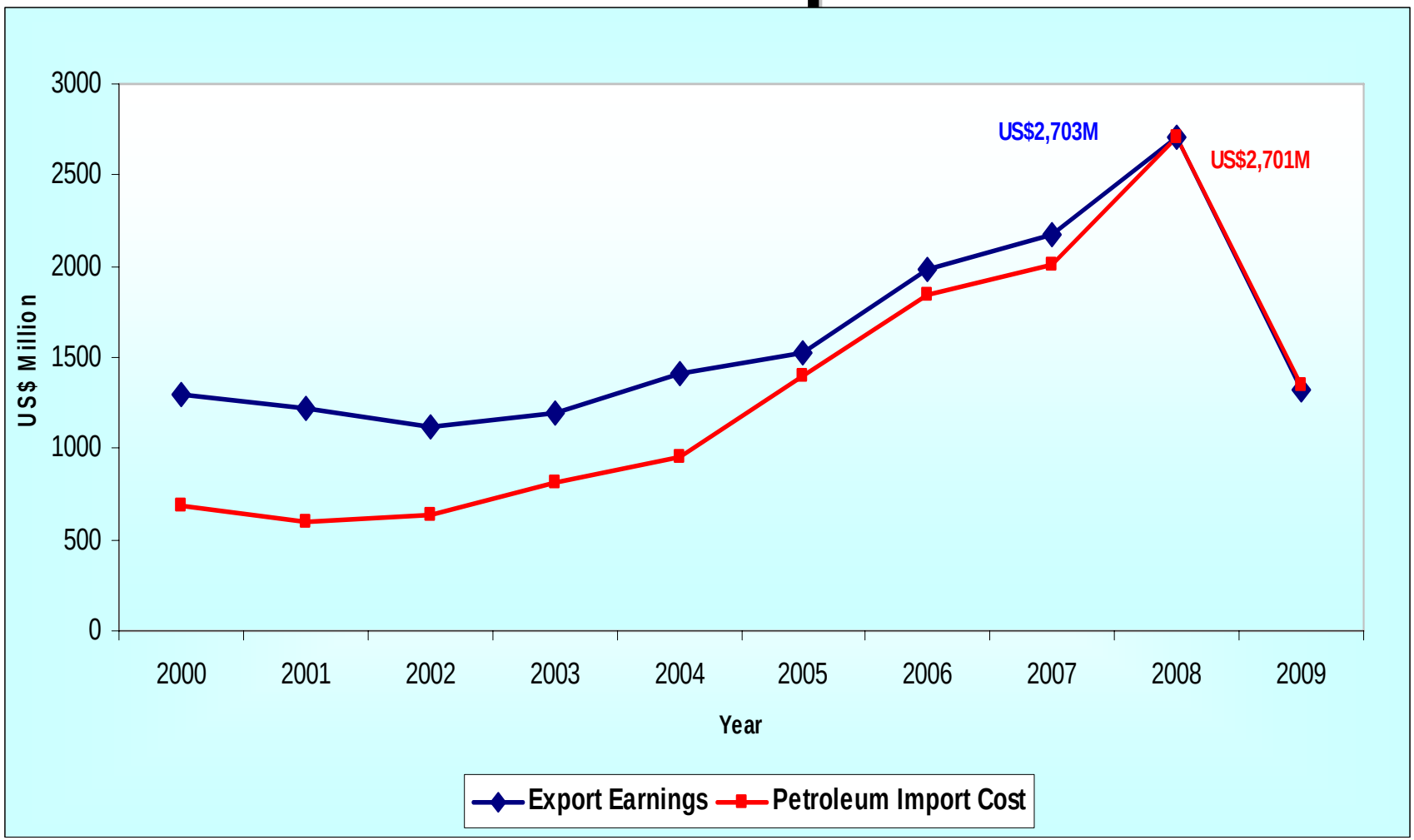
Energy Profile

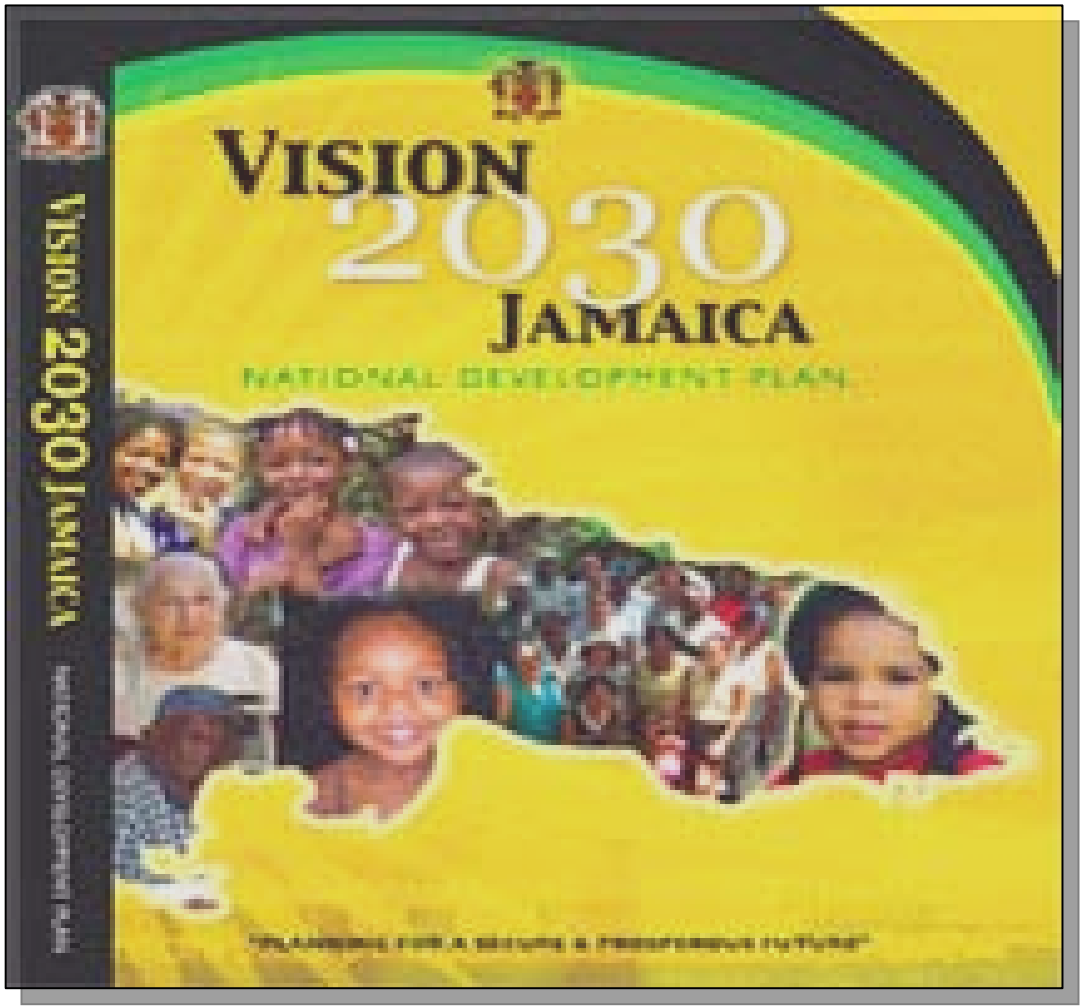


Petroleum Volume and Cost



Jamaica's Export Earnings vs. Oil Import





NATIONAL DEVELOPMENT PLAN

http://www.vision2030.gov.jm/

Jamaica's Vision

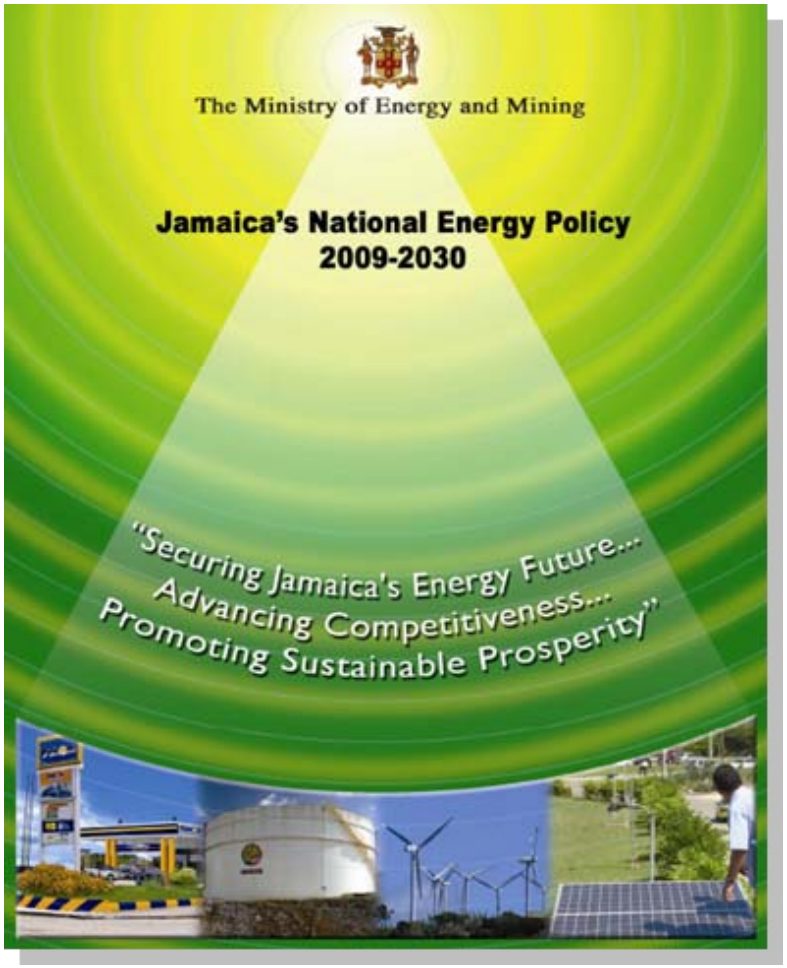
"Jamaica, the place of choice to live, work, raise families, and do business"

- ***"Developed Country Status"* by 2030**
- Long-term strategies

National Industrial Policy

- Strategic Plan for Economic Growth and Development
  - Parliamentary approval March 1996
  - Medium to long-term plan
  - Specific targets for economic growth
  - Targeted strategic clusters for development

- Essential elements
  - Macroeconomic Policy
  - Industrial Strategy
  - Social Partnerships
    - Government
    - Labour
    - Employees
  - Environmental Policy



ENERGY SECTOR POLICIES

http://www.mem.gov.jm/policy_develop.htm

National Energy Policy 2009 – 2030

- Aggressive energy conservation and efficiency;
- Modernize the energy infrastructure;
- Exploitation of renewable energy resources;
- Security of energy supplies;
- Establishment of institutional framework;
- GOJ lead in implementation of policies;
- Private sector involvement in creating “Green Economy”








Energy Efficiency Policy and Strategy

- Energy Conservation and Efficiency Policy (ECEP) addendum to National Energy Policy
- ECEP focuses efficiency across all sectors
  - o Development of institutional frameworks
  - o Application to the public and private sectors
  - o Building codes and standards
  - o Potential impact on the environment








Energy Efficiency Policy and Strategy cont'd

- Public Sector Strategies
  - Target reduction: 10-15%
  - Energy budgeting
  - Improving efficiencies (NWC, hospitals, schools…)
  - Energy coordinators

- Private Sector Strategies
  - Target reduction: 5-7%
  - Providing technical assistance (photovoltaic systems)
  - Replacing incandescent with CFL bulbs
  - Efficiency labeling
  - Energy management systems/facilities (energy managers, reporting, energy audits…)








Energy Efficiency Policy and Strategy cont'd

- Electricity Sector Strategies
  - o Loss reduction
  - o Heat rate improvements
  - o Power factor improvement
  - o Demand Side Management

- Transport Sector Strategies
  - o Policy integration – strengthen nexus between the Energy and Transport Policies
  - o Traffic management
  - o Urban strategizing: park & ride, car pooling, mass transit

Energy Efficient Technologies

Energy Efficient Technologies: Light Bills

- Install an Energy Management System (EMS)
- Encourage CFL usage
- Replace magnetic ballasts with electronic ones
- Motion detectors
- Install chilled water thermal energy storage system

Energy Efficient Technologies: Water

- Install aerators in bathrooms faucets

- Install low-flow toilets and urinals

- Use of touch-less controls

Energy Efficient Technologies: Space Cooling

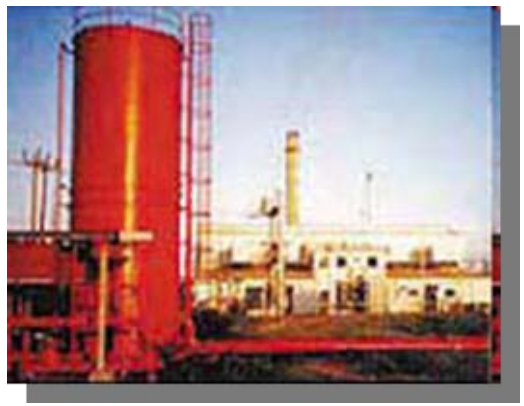
- Air Conditioners (AC)
  - o Replace AC units with water-chilled unit
    - Reduce electricity consumption by 46%
- Place AC units and blowers on timers
- Replace coolants in split units with hydro-carbons
- Replace split units with centralized systems

Energy Efficient Technologies: Space Cooling

Chillers

Energy Efficient Technologies: Others

- Conducting energy audits
- Install cogeneration systems
- Efficient electric motors and variable speed drives
- Efficient industrial lamps
- Improve steam system efficiency
- Insulated walls and ceilings
- Paint building exterior in lighter colours



Renewable Energy Technology

- RE accounts for approx. 8% of energy mix;
- RE resources available in Jamaica
  - o Solar Energy
  - o Hydro Energy
  - o Biomass Energy
  - o Bio-fuels
  - o Wind Energy

Wind Energy

- Commercial wind-farm (Wigton)
- Maximum capacity of 20.7 MW
- 23 wind turbines
- Cost US$25 million
- Commissioned April 2004

Wind Energy: Wigton Expansion

- Additional 18 MW
- **Operational 2010 (August/Sept)**
- US$50 million project
- Reduce petroleum consumption
- Carbon credits

Supporting Mechanisms

- Legislative & Regulatory Framework
  - o Acts, Codes, Standards & Labeling
    - National Building Code
    - National Health and Safety Code (HSE)
    - Equipment & Appliance Labeling
    - Use of Smart Meters (JPSCo)
    - Office of Utilities Regulation
    - The Natural Resources Conservation Authority Act








Support Mechanisms: Financial Assistance

Development Bank of Jamaica (DBJ)

- US$500M Revolving Loan Energy: US$15M maximum per project
  - o *Interest* rate 12.5% fixed for life of project
  - o 7 years
  - o 12 months moratorium

- Eligible Enterprise
  - o Commercial & Industrial Users
  - o Energy Services Co. (ESCOs)
  - o Equipment Manufacturers

www.dbankjm.com

Environmental Impact

- Changing energy consumption habits
  - o Cut down on CO_2 gas emissions
  - o Reduce liquid and solid waste
  - o Impact of global warming
- Rich biodiversity
  - o Development of renewable resources
    - Less toxic / better air quality
    - Reduced threat to water quality
    - Decline in emission levels (C02, NOX…)
- **CDM & Kyoto Protocol**





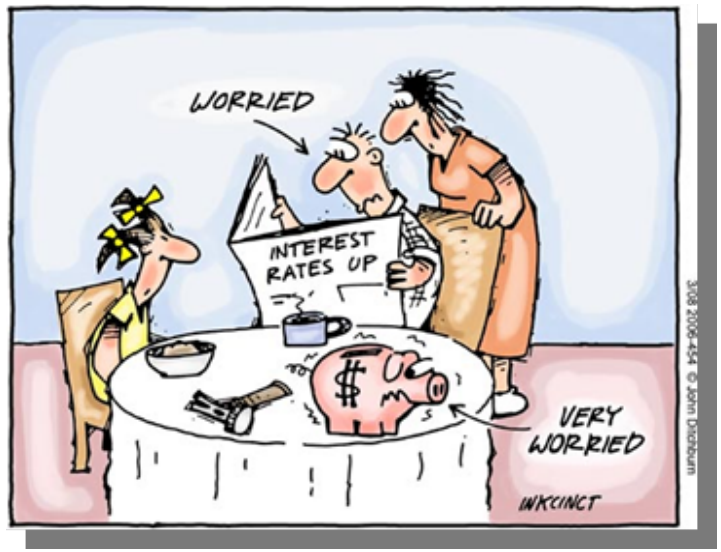



Way Forward

- **Incentives**
  - **Energy efficient devices**
  - **RE Technologies**
- Loan facilities
  - Building Societies
  - Financial institutions
  - National Housing Trust
- Adherence to Building Code (Energy Efficiency)
- Monitoring and implementation of ECE Policy
- **Sensitize consumers towards more prudent use of energy**

Concluding Remarks

- Global oil market *unstable*
- Rising oil prices *unsustainable*
  - Could exceed US$100/bbl
- Security of supply *uncertain*
- Global competitiveness *threatened*
- **Energy conservation and efficiency is a National Imperative**
- **Preservation of the Environment is a must!!!**



Thank You… The End

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Questions & Answers